

SOUTH AUSTRALIA.

PORT LINCOLN HARBOUR BORING PROJECT.

PROGRESS REPORT.

Introduction.

Following upon a preliminary report of a geological inspection of the Port Lincoln Harbour area submitted by me on 24/10/49 (Rept. No. 28-35, DM 359/49) it was decided in consultation with officers of the S.A. Harbors Board to carry out a programme of diamond drilling of the sea floor in order to determine the depth to massive bedrock in certain critical areas. Aim was to establish sufficient information to permit the design of proposed new wharfs and berthing facilities between the existing Railway Jetty and Kirlton Point Jetty.

In the first instance the location of a minimum depth of 30 feet below Low Water to bedrock within this area was nominated but later as an alternative design the location of the - 45 feet line was called for. Drilling was carried out at 50 foot centres along a number of lines running out from the shore, from sites which were established by surveyors of the S.A. Harbors Board. These sites are shown on the locality plan (No. 49-345).

A description of the drilling operations is contained in an interim report prepared by the Supervisor of Boring Operations on 28/2/50 (DM 359/49)

Drilling Progress.

Up to 30/6/50 some 34 bores had been sunk. These were located along 4 roughly parallel lines as shown in the locality plan, i.e.

Line 2 (Bores 2A - 2H, with check bores at 2H₁ and 2K)

Line 3 (Bores 3A - 3H)

Line 4 (Bores 4A - 4D)

Line 5 (Bores 5A - 5G)

Samples from all of these boreholes, ~~with the exception of Bores 5E-G (the latest to be drilled)~~ have been received at the Mines Department Depot, and have been examined and logged. The logs of all bores sunk on lines 2, 3 and 4 are already contained in this docket (DM 359/49) and logs of bores 5A-H are attached to this report.

The drilling has revealed that the formations existing below the present sea floor in the area investigated comprise (in order of increasing depth) : grey sand

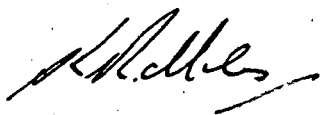
and grit with abundant recent shells (unconsolidated); a discontinuous layer of cream-buff coloured sandy travertinous limestone (soft and should be easily dredgable); bedrock - coarse dense and massive granite-gneiss with bands of amphibolite. This rock is for the most part fresh and hard and would be quite impenetrable by driven piles, but in some bords the solid rock appears to be covered by a thin veneer (up to 5 feet) of rubble and relatively soft decomposed rock which is ^{re}covered as a loose coarse grit, and which would probably be capable of removal by dredging.

Bedrock Contours.

Progress geological sections showing the profiles of the sea floor and of the massive bedrock surface have been compiled. ^{PLAN 50-226} These demonstrate the undulating nature of the old bedrock surface. An attempt has been made to show this surface by means of contours at 10 ft. intervals based on low water level as zero datum. It is however apparent that closer drilling along lines spaced at much shorter intervals than those already completed would be required to delineate this bedrock surface with any accuracy.

Conclusions.

It is clear from the drilling programme completed to date, that to obtain a minimum depth of 30 feet below low water over any considerable distance in the area tested, it would be necessary to move out to a minimum distance of 700 feet offshore from H.M.M. on the beach. Acceptance of this fact will probably necessitate a radical alteration in plans for the proposed new wharf layout and design of harbour improvements in the area.



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SOUTH AUSTRALIA.

Line 5 PORT LINCOLN HARBOUR DRILLING.
100 ft. East of Main Jetty.

BORE 5A (450 ft.) BORE SERIAL NO. DD 54/50.

DRILLING COMMENCED 23/5/50 COMPLETED 24/5/50 DRILLER W.G. Noble

0 (sea bed)	- 16'6"	Grey sand, shells
16'6"	- 22'6"	Buff to light grey calcareous clayey sand and shells
22'6"	- 26'	Coarse massive biotite granite (broken zone at 23'3" - 23'9")

END OF BORE AT 26'

(6" sand bar tide reading 2'6" Site reading 2')

PORT LINCOLN HARBOUR.

BORE 5B BORE SERIAL NO. DD 55/50

DRILLING COMMENCED 26/5/50 COMPLETED 30/5/50 DRILLER W. G. Noble

0 (sea bed)	- 16'	Grey sand shells
16'	- 20'	Sandy to gritty soft limestone
20'	- 31'	Broken to solid massive coarse granite gneiss.

END OF BORE AT 31'

(Low water 6" sand bar)

BORE 5C BORE SERIAL NO. DD 56/50

DRILLING COMMENCED 1/6/50 COMPLETED 2/6/50 DRILLER W. G. Noble

0 (sea bed)	- 17'3"	Grey sand, shells
17'3"	- 19'	Sandy buff cream limestone
19'	- 22'9"	Coarse granite sand and rubble, and pale greenish clay
22'9"	- 25'6"	Coarse granite gneiss

END OF BORE AT 25'6"

(Low water 3" sand bar)

BORE 5D BORE SERIAL NO. DD 57/50

DRILLING COMMENCED 5/6/50 COMPLETED 6/6/50 DRILLER W. G. Noble

0 (sea bed)	- 17'9"	Grey sand shells
17'9"	- 19'9"	Grit and cream limestone
19'9"	- 21'	Granite boulder
21'	- 24'4"	Granitic rubble and grit with cream limestone
24'4"	- 26'6"	Massive coarse gneissic granite

END OF BORE AT 26'6"

(Low water 2'9")

Line 5 (cont.)

BORE 5E (Low water at 4'3")

BORE SERIAL NO. DD 58/50

DRILLING COMMENCED 9/5/50

COMPLETED 14/6/50

DRILLER W. G. Noble

0 (sea bed)	- 18'6"	Gray sand, shells
18'6"	- 21'	Cream coloured highly calcareous sand
21'	- 24'	Pebbles (granitic rock)
24'	- 27'	Dense med. fine grained amphibolite (bed rock)

END OF BORE AT 27'

BORE 5F (Low water at 16'6")

BORE SERIAL NO. DD 59/50

DRILLING COMMENCED 15/6/50

COMPLETED 20/6/50

DRILLER W. G. Noble

0 (sea bed)	- 10'	Gray sand, shells
10'	- 15'	Pale gray sand and shell fragments
15'	- 16'6"	Sand shells and coarse grit
16'6"	- 19'	Greenish clay
19'	- 28'6"	Weathered gneissic "augen" granite (bedrock) hard massive and fractured.

END OF BORE AT 28'6"

BORE 5G (Low water at 24'7")

BORE SERIAL NO. DD 60/50

DRILLING COMMENCED 22/6/50

COMPLETED 23/6/50

DRILLER W. G. Noble

0 (sea bed)	- 5'	Gray sand, shells
5'	- 5'6"	Buff travertine limestone (hard nodules)
5'6"	- 16'	Pale gray calcareous sand
16'	- 18'	Pale greenish yellow sandy clay
18'	- 19'6"	Clay and decomposed granite fragments
19'6"	- 22'6"	No core
22'6"	- 25'9"	Granite pebbles
25'9"	- 28'	No core
28'	- 29'	Massive coarse gneissic granite

END OF BORE AT 29'



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